

## CLAIMS

- 1     1.     A low-noise air moving motor assembly comprising:  
2                 a motor assembly having a rotatable shaft;  
3                 a fan assembly coupled to said rotatable shaft which generates an airflow  
4                 that passes over at least a portion of said motor assembly; and  
5                 a self-extinguishing flame and noise suppression sleeve at least partially  
6                 disposed around said motor assembly.
- 1     2.     The assembly according to claim 1, wherein said fan assembly has an outer  
2                 diameter and wherein said noise suppression sleeve has a sleeve diameter disposed  
3                 about said fan assembly outer diameter.
- 1     3.     The assembly according to claim 1, wherein said noise suppression sleeve is a  
2                 foam material with self-extinguishing flame properties.
- 1     4.     The assembly according to claim 1, further comprising:  
2                 a sleeve cover attached to said noise suppression sleeve;  
3                 said noise suppression sleeve having a shroud end attached to said fan  
4                 assembly opposite a distal edge which forms a sleeve opening, and said sleeve  
5                 cover is attached to said distal edge.
- 1     5.     The assembly according to claim 4, wherein said sleeve has a cover hole  
2                 therethrough and wherein said motor assembly extends through said cover hole.
- 1     6.     The assembly according to claim 1, wherein said sleeve is in touching contact with  
2                 said motor assembly.
- 1     7.     The assembly according to claim 1, wherein said noise suppression sleeve has a  
2                 shroud end attached to said fan assembly opposite a distal edge.

- 1       8.     The assembly according to claim 7, wherein said distal edge is curved inwardly to  
2             form a sleeve opening.
- 1       9.     The assembly according to claim 8, wherein said motor assembly extends through  
2             said sleeve opening and said distal edge is in touching contact with said motor  
3             assembly.
- 1       10.    The assembly according to claim 1, wherein said fan assembly comprises:  
2             a fan secured to said shaft;  
3             a diffuser/bracket assembly coupled to said motor assembly, said  
4             diffuser/bracket assembly rotatably receiving said shaft;  
5             a fan shroud secured to said diffuser/bracket assembly, wherein rotation of  
6             said fan draws air in through said fan shroud and out said diffuser/bracket  
7             assembly, said diffuser/bracket assembly having at least one foam piece coupled  
8             thereto to reduce the noise of air flowing therethrough.
- 1       11.    The assembly according to claim 10, wherein said diffuser/bracket assembly  
2             comprises:  
3             a fan end bracket; and  
4             a diffuser coupled to said fan end bracket;  
5             said fan end bracket comprising a planar plate having bracket openings  
6             therethrough adjacent said at least one motor bracket, said at least one foam piece  
7             disposed on said at least one motor bracket adjacent said bracket opening to absorb  
8             noise.
- 1       12.    The assembly according to claim 10, wherein said diffuser/bracket assembly  
2             comprises:  
3             a fan end bracket having at least one motor bracket for carrying said motor  
4             assembly, said fan end bracket having a motor opening therethrough; and  
5             a diffuser coupled to said fan end bracket, said diffuser having a plurality  
6             of peripheral openings therethrough, said diffuser having a plurality of blades

7 extending from one side thereof toward said fan end bracket, said at least one foam  
8 piece disposed on at least one of said plurality of blades to absorb noise.

1 13. The assembly according to claim 12, wherein said blades are curvilinear and  
2 provide a concave surface, said foam being disposed on said concave surfaces.

1 14. The assembly according to claim 10, wherein said diffuser/bracket assembly  
2 comprises:

3 a fan end bracket having at least one motor bracket for carrying said motor  
4 assembly, said fan end bracket having a motor opening therethrough; and

5 a diffuser coupled to said fan end bracket, said diffuser having a plurality  
6 of channels extending from one side thereof toward said fan end bracket, said at  
7 least one foam piece disposed on at least one of said plurality of blades to absorb  
8 noise.

1 15. The assembly according to claim 13, wherein said channels are curvilinear and  
2 provide a concave surface, said foam being disposed on said concave surfaces.

1 16. A low noise air-moving motor assembly, comprising:

2 a motor assembly having a rotatable shaft; and

3 a fan assembly coupled to said motor assembly, said fan assembly including  
4 a fan secured to said shaft;

5 a fan end bracket for carrying said motor assembly, said fan end bracket  
6 having bracket openings therethrough, and a diffuser coupled to said fan end  
7 bracket, said diffuser having openings therethrough, wherein rotation of said fan  
8 generates an airflow that passes through said bracket openings and said openings,  
9 said fan end bracket carrying at least one foam piece to absorb noise generated by  
10 said fan.

1 17. The assembly according to claim 16, further comprising:

2 a noise suppression sleeve at least partially disposed around said motor  
3 assembly.

- 1     18.     The assembly according to claim 16, wherein said fan end bracket has at least one  
2             motor bracket for carrying said motor assembly, said bracket openings adjacent  
3             said at least one motor bracket, said at least one motor bracket having noise  
4             suppression foam disposed thereon.
- 1     19.     The assembly according to claim 16, wherein said diffuser has a plurality of  
2             curvilinear blades which direct the airflow from the fan toward said motor  
3             assembly, said curvilinear blades having noise suppression foam disposed thereon.
- 1     20.     The assembly according to claim 16, further comprising:  
2             a noise suppression sleeve at least partially disposed around said motor  
3             assembly, wherein said sleeve and said at least one foam piece exhibits self-  
4             extinguishing flame properties.
- 1     21.     The assembly according to claim 16, further comprising:  
2             a fan shroud at least partially enclosing said fan assembly and secured to  
3             said fan end bracket, said fan shroud having an inlet port.
- 1     22.     The assembly according to claim 21, further comprising:  
2             a noise suppression sleeve positioned about said fan assembly, wherein  
3             said fan shroud has a plurality of exhaust ports, and said sleeve is placed in close  
4             proximity to said exhaust ports.
- 1     23.     The assembly according to claim 21, further comprising:  
2             a noise suppression sleeve having at least one internal flange that forms a  
3             labyrinth flow path, said fan shroud having a tangential exhaust port, and said  
4             sleeve fitting upon said tangential exhaust port.